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L18: Entry 1 of 3

File: USPT

US-PAT-NO: 5821179

DOCUMENT-IDENTIFIER: US 5821179 A

TITLE: Absorbent sheet process for producing the same and absorbent article using the same

DATE-ISSUED: October 13, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Masaki; Kazumichi	Kochi-ken			JP
Kubota; Yoshihito	Tosa			JP
Ichikawa; Eichi	Kochi			JP
Kaganoi; Mari	Kochi			JP
Nakanishi; Minoru	Tochigi-ken			JP
Hamajima; Mitsugu	Tochigi-ken			JP
Yamamoto; Yasuhiro Y.	Tochigi-ken			JP
Kawasaki; Hironori	Tochigi-ken			JP
Kusagawa; Tetsuya	Tochigi-ken			JP

US-CL-CURRENT: 442/375; 442/381, 442/393, 604/367

## ABSTRACT:

The absorbent sheet comprising at least hydrophilic fibers and thermally fusible bonding fibers or a strengthening assistant, and a superabsorbent polymer is characterized in that the superabsorbent polymer is not present on an absorbent surface of the absorbent sheet for absorbing liquid but distributed inside the absorbent sheet, and is adhered and fixed to the hydrophilic fibers constituting the absorbent sheet, the superabsorbent polymer is spread at an amount of 5 to 300 g per 1 m.sup.2 of the absorbent sheet and the absorbent sheet has thickness of 0.3 to 1.5 mm.

15 Claims, 27 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 10

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	WMO	Draw Desc	Image
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☐ 2. Document ID: US 5679042 A

L18: Entry 2 of 3

File: USPT

US-PAT-NO: 5679042

DOCUMENT-IDENTIFIER: US 5679042 A

TITLE: Nonwoven fabric having a pore size gradient and method of making same

DATE-ISSUED: October 21, 1997

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Varona; Eugenio Go	Marietta	GA		

US-CL-CURRENT: 442/347; 156/84, 26/18.5, 425/72.2, 425/83.1, 428/310.5, 428/311.51,  
442/351, 442/362, 442/363, 442/364, 442/414

## ABSTRACT:

Methods and apparatus for forming a nonwoven fiber web containing a pore size gradient resulting in enhanced wicking properties. A first method utilizes a conventionally formed web having an average pore size and comprises selectively contacting the web with a heat source to shrink the fibers in selected areas. The smaller pore sizes have greater wicking ability. A second method utilizes a novel apparatus and comprises forming a nonwoven fiber web having zones of fibers, each zone having generally an average set of fiber structure and/or composition, the zones preferably overlapping. The zones of fibers are exposed to a heat source, which shrinks the fibers according to their denier and composition.

The apparatus uses a conventional meltblown or spunbond system and provides a plurality of resin sources which feed resin to a plurality of meltblowing dies. Each die produces fibers of a particular denier and/or composition which forms zones in a web collected on a collecting belt. The web moves underneath a manifold which blows heated air or sprays boiling water onto the fibers. The fibers shrink according to their structure and composition to form a web having a pore gradient.

45 Claims, 8 Drawing figures

Exemplary Claim Number: 1,20,45

Number of Drawing Sheets: 7

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	IMC	Draw Desc	Image
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☐ 3. Document ID: US 4189336 A

L18: Entry 3 of 3

File: USPT

US-PAT-NO: 4189336

DOCUMENT-IDENTIFIER: US 4189336 A

TITLE: Method of forming pile products by tack-spinning and heat treatment therefore

DATE-ISSUED: February 19, 1980

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hutflesz; Heather E.	Angelbachtal			DE

US-CL-CURRENT: 156/72; 26/2R, 264/164, 264/230, 264/243, 264/284, 264/345, 28/159

## ABSTRACT:

A method for increasing the depth of a tack-spun thermoplastic pile on a backing layer comprises space heating the pile side of the product for a time and temperature less than that at which the pile collapses, said temperature being between the glass rubber transition temperature but above ambient and the temperature at which the pile collapses, using a heat source not in contact with the pile, and subsequently cooling the pile to ambient temperature.

11 Claims, 3 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KIMC	Draw Desc	Image
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Term	Documents
"5679042"[USPT]	1
5679042S	0
"5821179"[USPT]	1
5821179S	0
"4189336"[USPT]	1
4189336S	0
("5679042" OR "5821179" OR "4189336")[PN].USPT.	3
((5679042 OR 5821179 OR 4189336)[PN]).USPT.	3

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L17: Entry 1 of 3

File: DWPI

Nov 25, 2000

DERWENT-ACC-NO: 1998-348479

DERWENT-WEEK: 200130

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TITLE: Low-cost composite compositions comprise hydratable cellulose-based micro-fibril fibres, swellable solid partially coated with the fibre, etc. - fabricated into absorbent sheets, tubes, etc. with high absorbency and softness, useful as water retainers, nappies, in feminine hygiene products, medial dressings, and underwater cable covers

INVENTOR: MATSUMOTO, R; MORI, S ; SUZUKI, M

PRIORITY-DATA: 1997JP-0329830 (December 1, 1997), 1996JP-0333520 (December 13, 1996), 1997JP-0124623 (May 15, 1997), 1997JP-0192159 (July 17, 1997), 1997JP-0213222 (August 7, 1997), 1997JP-0313368 (November 14, 1997)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
KR 2000069445 A	November 25, 2000		000	C08L001/00
WO 9825999 A1	June 18, 1998	J	166	C08L001/00
JP 10168230 A	June 23, 1998		015	C08L001/00
AU 9854120 A	July 3, 1998		000	C08L001/00
JP 10314217 A	December 2, 1998		011	A61F013/15
JP 11034200 A	February 9, 1999		012	B32B005/16
JP 11047192 A	February 23, 1999		006	A61F013/54
JP 11137600 A	May 25, 1999		013	A61F013/15
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EP 947549 A1	October 6, 1999	E	000	C08L001/00
JP 3016367 B2	March 6, 2000		016	C08L001/00
CN 1244881 A	February 16, 2000		000	C08L001/00
BR 9714024 A	May 9, 2000		000	C08L001/00
NZ 336395 A	March 30, 2001		000	C08L001/00
MX 9905436 A1	February 1, 2000		000	C08L001/28
AU 731439 B	March 29, 2001		000	C08L001/00

B INT-CL (IPC): A41 B 13/00; A61 F 5/44; A61 F 13/15; A61 F 13/46; A61 F 13/49; A61 F 13/53; A61 F 13/54; A61 L 15/00; B29 D 31/00; B32 B 5/16; B32 B 5/26; B32 B 27/00; C08 L 1/00; C08 L 1/28; D06 M 15/00; D06 M 15/05; C08 L 1/00; C08 L 101:14; C08 L 1/00; C08 L 101:14